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IS 7587-5 (2006): Cage Suspension Gear for Winding in Mines, Part 5: Distribution Plates [MED 8: Mining Techniques and Equipment]

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भारतीय मानक

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भाग 5 समकारी प्लेट  
( पहला पुनरीक्षण )

*Indian Standard*  
**CAGE SUSPENSION GEAR FOR WINDING  
IN MINES — SPECIFICATION**  
**PART 5 DISTRIBUTION PLATES**  
( *First Revision* )

ICS 73.100.40

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**BUREAU OF INDIAN STANDARDS**  
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NEW DELHI 110002

## **FOREWORD**

**This Indian Standard (Part 5) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Mining Techniques and Equipment Sectional Committee had been approved by the Mechanical Engineering Division Council.**

**This standard was first published in 1976. The experience gained in the implementation of the standard has necessitated this revision.**

**The important changes in this revision are:**

- a) Title of this part of standard has been changed as distribution plate in place of equalizing plate as in mining industry; it is termed as distribution plate.**
- b) Type B distribution plate is not being used in the industry now. Accordingly, Type B has been deleted and no type has been specified.**
- c) Distribution plates for use with bridle chains of 50, 80, 100 and 120 kN capacity only are being used now. Accordingly, distribution plates for use with cage suspension gear of 10, 30 and 150 kN safe working load capacity have been deleted.**

**Distribution (equalizing) plate is a component of a suspension gear used for winding in mines and is used for connection of bridle chains to the other components of the suspension gear.**

**This standard is issued in eight parts. The other parts in the series are:**

- Part 1 General requirements**
- Part 2 Cappels**
- Part 3 Shackles and pins**
- Part 4 Bridle chains**
- Part 6 Safety detaching hooks (4 plate type) 80 and 100 kN capacity**
- Part 7 Safety detaching hooks (4 plate type) 120, 150 and 200 kN capacity**
- Part 8 Clivey hook suspension arrangements**

**The composition of the Committee responsible for the formulation of this standard is given at Annex A.**

**For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.**

*Indian Standard***CAGE SUSPENSION GEAR FOR WINDING  
IN MINES — SPECIFICATION****PART 5 DISTRIBUTION PLATES***(First Revision)***1 SCOPE**

This standard (Part 5) covers the requirements, consistent with safety, for distribution (equalizing) plates used for suspension of cages employed for winding operations in mines.

**2 REFERENCES**

The following standard contains provisions which through reference in this text, constitute provision of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
7587 (Part 1) : 2004	Cage suspension gear for winding in mines — Specification : Part 1 General requirements ( <i>first revision</i> )

**3 DIMENSIONS**

The dimensions of distribution plate shall be as given in Table 1.

**4 MATERIAL**

The material used for manufacture of distribution plates shall be as specified in IS 7587 (Part 1).

**5 GENERAL REQUIREMENTS**

Distribution plates shall conform in all respects to IS 7587 (Part 1).

**6 MANUFACTURE**

**6.1** The distribution plates shall be forged.

**6.2** All the holes shall be smoothly bored and sharp corners shall be removed by machining.

**7 HEAT TREATMENT**

Subsequent to forging or flame cutting and rough machining and prior to final finish all plates shall be subjected to suitable heat treatment to achieve the required mechanical properties.

**8 DESIGNATION**

A distribution plate having 50 kN safe working load and manufactured from carbon steel (C for 20C15 steel and A for 20Ni2Cr2Mo2 steel) shall be designated as:

Distribution Plate 50 IS 7587 (Part 5)-C

**9 PROOF LOAD TEST**

Each distribution plate shall be tested with a proof load equal to three times the safe working load (*SWL*) specified in Table 1 and shall satisfactorily withstand the load without any permanent deformation or defect. In addition, the requirements of proof load test given in IS 7587 (Part 1) shall apply.

**10 MARKING**

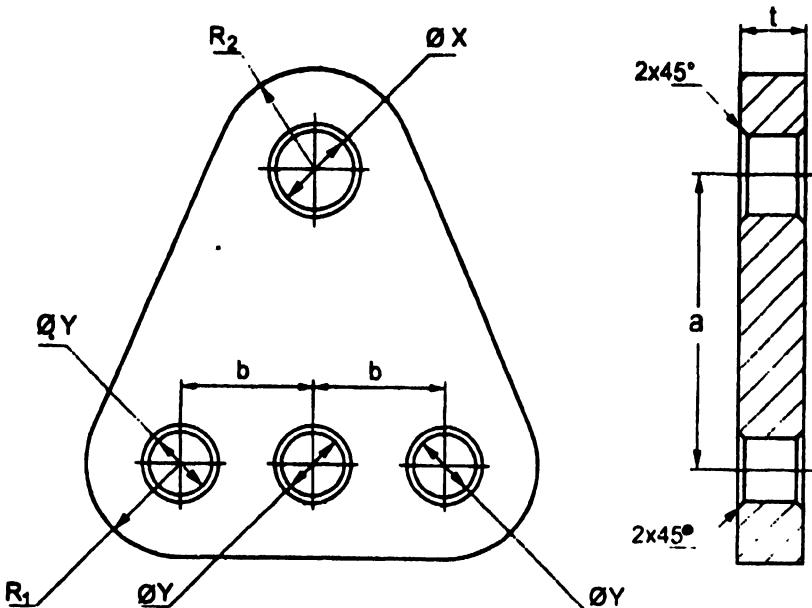
**10.1** Each distribution plate shall be marked with the manufacturer's identification mark, safe working load and abbreviated name for material [see 11.1 of IS 7587 (Part 1)].

**10.2 BIS Certification Marking**

Each distribution plate may also be marked with the Standard Mark.

**10.2.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which a license for the use of the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.

**Table 1 Dimensions for Distribution Plate**  
*(Clauses 3 and 9)*  
All dimensions in millimetres.



Sl No.	SWL of Suspension Gear kN	a	b	R <sub>1</sub>	R <sub>2</sub>	t	Hole Diameter		Remarks
							ØX H <sub>7</sub>	ØY H <sub>7</sub>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	50	165	76	54	57	38	45	36	Four fall chain
ii)	80	203	127	70	70	51	52	45	Six fall chain
iii)	100	254	152	76	79	57	56	52	Six fall chain
iv)	120	267	155	83	86	65	60	65	Six fall chain

NOTE — Four fall chain, distribution shall have no centre bottom hole.

## ANNEX A

( *Foreword* )

## COMMITTEE COMPOSITION

## Mining Techniques and Equipment Sectional Committee, ME 08

<i>Organization</i>	<i>Representative(s)</i>
Directorate General of Mines Safety, Dhanbad	SHRI J. P. KASHYUP ( <i>Chairman</i> ) SHRI P. K. GANGULY ( <i>Alternate</i> )
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Bharat Earth Movers Ltd, Bangalore	SHRI V. PALANISWAMY SHRI T. R. LOGANATHAN ( <i>Alternate</i> )
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Central Mine Planning and Design Institute Ltd, Ranchi	SHRI S. K. CHATTERJI SHRI U. ROY ( <i>Alternate</i> )
Central Mining Research Institute, Dhanbad	SHRI A. K. GHOSE SHRI S. K. RITOLIA ( <i>Alternate</i> )
Eimco Elecon (India) Ltd, Vallabh Vidyanagar	SHRI A. M. DESHPANDE SHRI RAVINDRA LUTHRA ( <i>Alternate</i> )
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Hindalco Industries Ltd, Dist Sonbhadra	SHRI K. K. PATODIA SHRI ASHOK BAMZAI ( <i>Alternate</i> )
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Hindustan Zinc Ltd, Udaipur	SHRI K. C. JAIN
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**IS 7587 (Part 5) : 2006**

<i>Organization</i>	<i>Representative(s)</i>
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<b>Western Coalfields Ltd, Nagpur</b>	<b>SHRI A. K. HALDAR</b> <b>SHRI P. S. RAJU (<i>Alternate</i>)</b>
<b>BIS Directorate General</b>	<b>SHRI C. K. VEDA, Scientist 'F' and Head (MED)</b> <b>[ Representing Director General (<i>Ex-officio</i>) ]</b>
	<b><i>Member Secretary</i></b> <b>SHRI T. V. SINGH</b> <b>Scientist 'E' (MED), BIS</b>

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### **Amendments Issued Since Publication**

<b>Amend No.</b>	<b>Date of Issue</b>	<b>Text Affected</b>

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